

In the Claims:

50. A method for reducing an amount of bio-available phosphorus in an organic waste product, liquid wastewater or soil, comprising the step of adding to the organic waste product, liquid wastewater or soil a composition or mixture comprising a byproduct from a titanium dioxide manufacturing process in an amount sufficient to immobilize some or all of the phosphorus present in the organic waste product, liquid wastewater or soil, wherein the byproduct comprises about 2-10% by weight calcium, about 10-20% by weight iron, and about 8% by weight titanium dioxide.

51. The method of Claim 50, wherein the byproduct comprises about 5% by weight calcium and about 15% by weight iron.

52. The method of Claim 50, wherein said organic waste product is animal waste.

53. The method of Claim 52, wherein said animal waste is poultry litter.

54. The method of Claim 50, wherein said byproduct is secondary waste acid neutralization gypsum or filter cake.

55. A method for reducing an amount of bio-available phosphorus in an organic waste product, liquid wastewater or soil, comprising the step of adding to the organic waste product, liquid wastewater or soil a composition or mixture comprising a byproduct from a titanium dioxide manufacturing process in an amount sufficient to immobilize

some or all of the phosphorus present in the organic waste product, liquid wastewater or soil, wherein the byproduct comprises about 15-50% by weight calcium, about 10-20% by weight iron, and about 2% by weight titanium dioxide.

56. The method of Claim 55, wherein the byproduct comprises about 23% by weight calcium and about 11% by weight iron.

57. The method of Claim 55, wherein said organic waste product is animal waste.

58. The method of Claim 57, wherein said animal waste is poultry litter.

59. The method of Claim 55, wherein said byproduct is secondary waste acid neutralization gypsum or filter cake.

60-71 (cancelled)

72. A method for controlling the growth of an organism in a body of water to which surface-, subsurface-, or ground-water flows, by reducing an amount of soluble phosphorus in a soil from which said water originates, comprising the step of amending the soil to include a mixture comprising a byproduct in an amount sufficient to immobilize some or all of the phosphorus present in the soil; said byproduct comprising calcium, iron and titanium dioxide.

73. The method of Claim 72, wherein said byproduct is obtained by manufacturing titanium dioxide by chemically processing a titanium dioxide starting material and obtaining said product containing calcium, iron and titanium dioxide.

74. The method of Claim 73, wherein the starting material is ore, coke, or slag.

75. The method of Claim 73, wherein said chemical process is chlorine based.

76. The method of Claim 73, wherein said byproduct comprises about 2-10% by weight calcium, about 10-20% by weight iron, and about 8% by weight titanium dioxide.

77. The method of claim 76, wherein the byproduct comprises about 5% by weight calcium and about 15% by weight iron.

78. The method of Claim 77, wherein said chemical process is sulfuric acid based.

79. The method of Claim 78, wherein the byproduct comprises about 15-50% by weight calcium, about 10-20% by weight iron, and about 2% by weight titanium dioxide.

80. The method of Claim 79, wherein the byproduct comprises about 23% by weight calcium and about 11% by weight iron.

81. The method of Claim 72, wherein said organism is algae.
82. The method of Claim 72, wherein said organism is bacteria.
83. The method of Claim 82, wherein said bacteria is *Pfiesteria*.
84. The method of Claim 83, wherein said bacteria is *Pfiesteria piscidiae*.
85. A method of controlling eutrophication in a body of water, which comprises the step of reducing an amount of soluble phosphorus flowing into said body of water from surface, subsurface or ground-water flows, by immobilizing some or all of the phosphorus present in a soil through which said surface, subsurface or ground-water flows pass; said immobilizing being effected by a byproduct comprising calcium, iron and titanium dioxide.

Please add the following new claims:

86. (new) A method for producing a by-product comprising calcium, iron and titanium dioxide, which method comprises the steps of chemically processing a titanium dioxide-containing starting material, and obtaining said by-product.
87. (new) The method of claim 86, wherein the starting material is ore, coke or slag.
88. (new) The method of claim 86, wherein said chemically processing is chlorine-

based.

89. (new) The method of claim 88, wherein said by-product comprises about 2-10% by weight calcium, about 10-20% by weight iron, and about 8% by weight titanium dioxide.

90. (new) The method of claim 89, wherein said calcium is present in the amount of about 5% by weight, and said iron is present in the amount of about 15% by weight.

91. (new) The method of claim 86, wherein said chemically processing is sulfuric acid-based.

92. (new) The method of claim 91, wherein the by-product comprises about 15-50% by weight calcium, about 10-20% by weight iron and about 2% by weight titanium dioxide.

93. (new) The method of claim 92, wherein, said calcium is present in the amount of about 23% by weight, and said iron is present in the amount of about 11% by weight.

94. (new) A method for reducing an amount of bio-available phosphorus in soil contaminated therewith, comprising the step of adding a by-product comprising calcium, iron and titanium dioxide to the soil in an amount sufficient to immobilize some or all of said bio-available phosphorus in the soil.

95. (new) The method of claim 94, wherein the bio-available phosphorus in soil contaminated therewith is from animal waste.

96. (new) The method of claim 95, wherein the animal waste is poultry litter.

97. (new) The method of claim 96, wherein the poultry litter is chicken litter.

98. (new) The method of claim 94, wherein said by-product is secondary waste acid neutralization gypsum or filter cake.

99. (new) The method of claim 94, wherein said by-product is produced by a process which comprises the steps of chemically processing a titanium dioxide-containing starting material.

100. (new) The method of claim 94, wherein said by-product comprises about 2-10% by weight calcium, about 10-20% by weight iron, and about 8% by weight titanium dioxide.

101. (new) The method of claim 100, wherein said calcium is present in the amount of about 5% by weight, and said iron is present in the amount of about 15% by weight.

102. (new) The method of claim 94, wherein said by-product comprises about 15-50% by weight calcium, about 10-20% by weight iron and about 2% by weight titanium

dioxide.

103. (new) The method of claim 102, wherein said calcium is present in the amount of about 23% by weight, and said iron is present in the amount of about 11% by weight.

104. (new) The method of claim 54, wherein said filter cake is iron oxide filter cake.

105. (new) The method of claim 98, wherein said filter cake is iron oxide filter cake.

106. (new) The method of claim 94, wherein said amount sufficient to immobilize some or all of said bio-available phosphorus in the soil is determined by a process comprising the steps of:

- a) reassuring soil phosphorus content by soil testing, and
- b) referring to an incubation experiment to determine an amendment amount.

107. (new) The method of claim 85, wherein said same or all of the phosphorus in the soil is from animal waste.

108. (new) The method of claim 107, wherein said animal waste is poultry litter.

109. (new) The method of claim 108, wherein said poultry litter is chicken litter.